

Mammography Education, Inc.



2020

BREAST SEMINAR SERIES

Faculty

LÁSZLÓ TABÁR, MD, FACR (Hon) Course Director
Professor emeritus of Radiology

Detection and Diagnosis of Breast Diseases Using the Multimodality Approach

A FULLY INTERACTIVE, UNIQUE LEARNING EXPERIENCE

Nov 17 - Nov 20, 2020

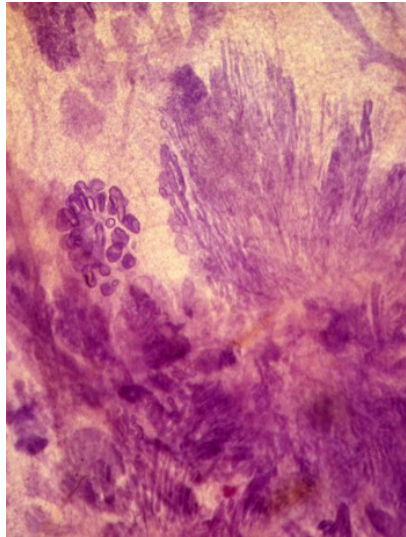
TORINO, Italy

Centro Congressi Unione Industriale

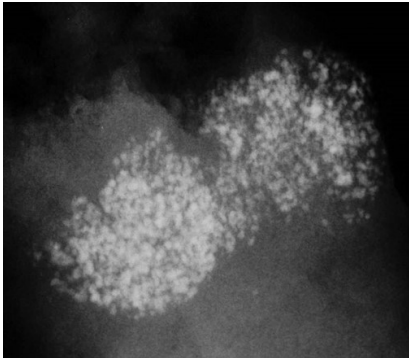
Il corso verrà accreditato per:

Medico Chirurgo specializzato in: oncologia, radioterapia, chirurgia generale, chirurgia plastica e ricostruttiva, ginecologia e ostetricia, anatomia patologica, medicina nucleare, patologia clinica, radiodiagnostica, medicina generale ed epidemiologia; TSRM

**NEW
course
design**



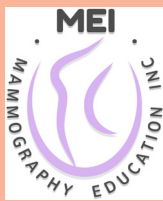
3D image of sclerosing adenosis



Mammogram of sclerosing adenosis



This course provides extensive knowledge about diagnostic breast imaging, differential diagnosis of breast diseases, implications for management and newest diagnostic technologies



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BREAST SEMINAR SERIES of MEI

Detection and Diagnosis of Breast Diseases
Using the Multimodality Approach. An interactive course.

László Tabár, MD, FACR (Hon)
Course Director

FACULTY



László Tabár, MD, FACR (Hon).
Course Director

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*Director of Mammography Screening
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Torino, Italy*



Photographs from the collection of the non-profit Tabar Foundation
dedicated to Research and Education for Breast Cancer,
Visit: tabarfoundation.org



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Mammography Education, Inc. is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. Mammography Education, Inc. designed these medical education activities for a maximum of **26 credit hours in Category I** of the Physicians' Recognition Award of the American Medical Association. Each physician should claim only those hours of credit that he / she actually spent in the educational activity.

NEW COURSE DESIGN

- * The lectures on each major subject will be followed by **interactive screening sessions** consisting of a mixture of normal and early cancer cases presented on the large screen exactly as they appear on a viewing station at screening. Using a specially provided polling program downloaded to each participant's smartphone or tablet, the attendees will be asked to vote anonymously on each case. The aggregate results will appear instantly for discussion and evaluation. This new course design gives immediate feedback demonstrating the effectiveness of various screening methods.
- * During the course the attendees will progressively **improve their interpretive expertise**, as they learn the full spectrum of normal breast images, with all important findings explained with the help of 3-dimensional histology images.
- * These skills will lead to **fewer call-backs** and greater confidence in reading a large number of mammograms.
- * **Immediate feedback** and discussion of every case throughout every reading session.
- * Special emphasis will be placed on **finding early phase breast cancers**.
- * All abnormal cases are fully worked up and the **complete imaging workup will be presented in detail, including ultrasound, MRI and large section histopathology**.

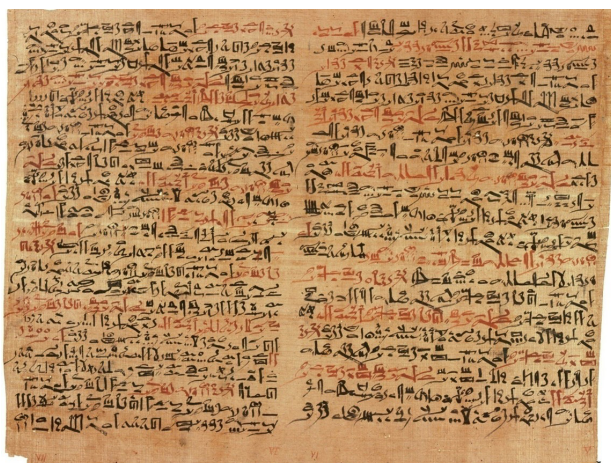
CREDITS

We would like to thank the sponsors for their support of the teaching seminars of Mammography Education, Inc (list of vendors will be presented at the beginning of the course)

Day 1 Nov 17 Morning lectures between 8:30 AM - 12:00 PM. Breaks: 10:00 AM, 11:00 AM

8:30 AM INTRODUCTION FOLLOWED BY DIDACTIC LECTURES COVERING:

- A NEW ERA in the DIAGNOSIS and TREATMENT of BREAST CANCER. A historical perspective.



The Edwin Smith papyrus



葛洪 (283年—343年)
东晋 **Master Hong Ge**

《肘後備急方》其卷五
治癰疽、妒乳諸毒腫方

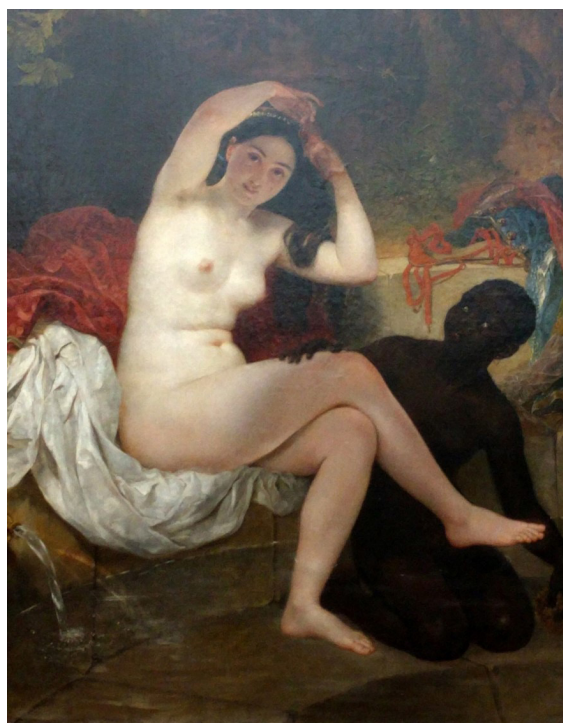
"Hard as Rock"

「癰結腫堅如石，或如
大核，色不變，或做石
癰不消」

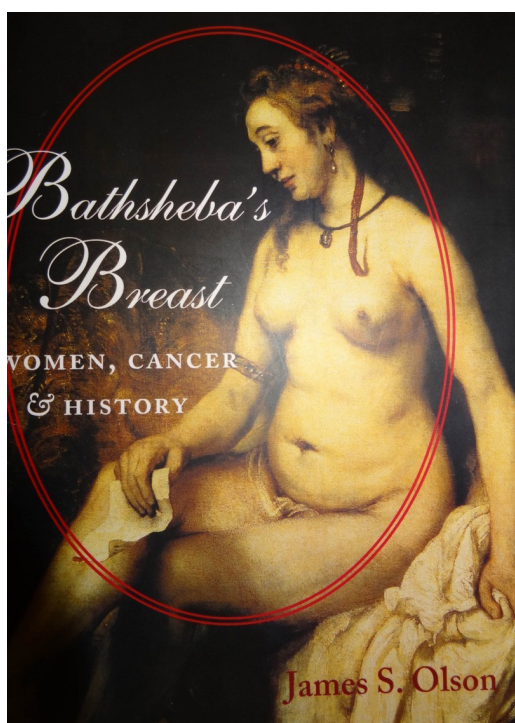
**No Change in
Skin Color**



Tu Youyou,
Chinese pharmaceutical chemist, 2015 Nobel Prize in Physiology or Medicine.
Got the idea from **same book** and discovered artemisinin and dihydroartemisinin with
colleagues, used to treat malaria, which has saved millions of lives.

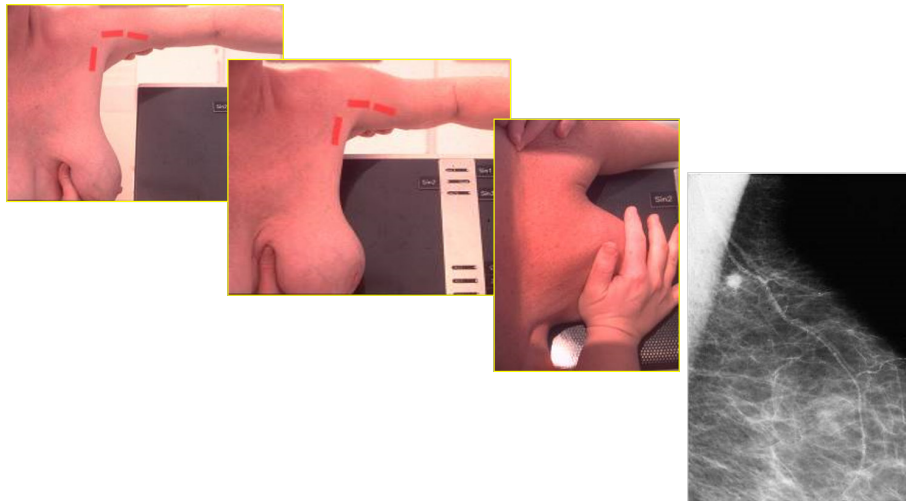


The young Bathsheba by Briullov,
Moscow, Tretyakovo museum

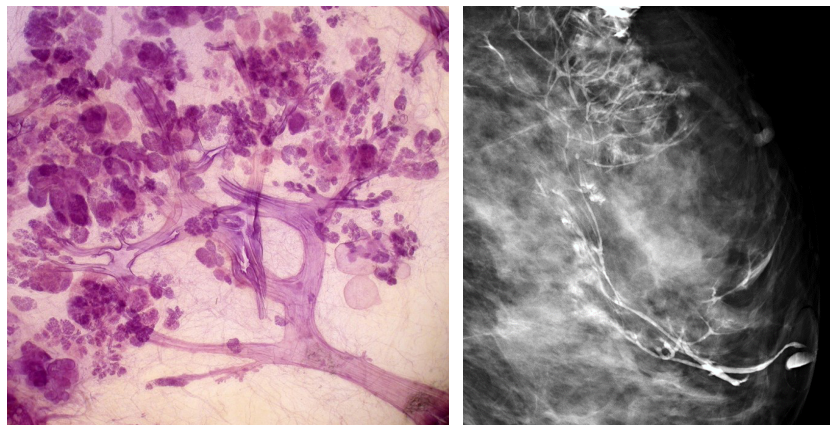


Rembrandt's painting of Bathsheba

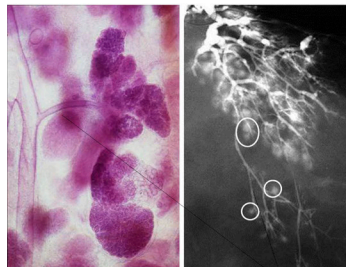
A major technical development in the mid-70s: the invention of *low dose film-screen mammography* made it possible to find breast cancers in their non-palpable phase.



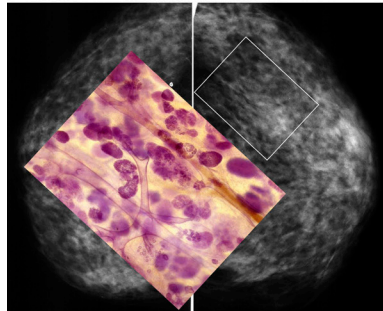
- **THE MAGICAL ROLE OF LARGE FORMAT, SUBGROSS HISTOPATHOLOGY IN TRAINING**
- Correlating 3-dimensional, subgross anatomy with mammography of the normal breast results in **increased confidence in reading a mammogram** and **finding small abnormalities**. Special training in large format thin and thick section (stereoscopic) histopathologic correlation enables the radiologist to account for every linear and nodular density on the mammogram.



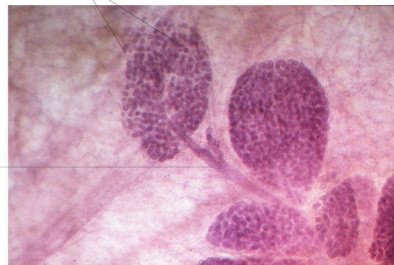
NORMAL BREAST ANATOMY



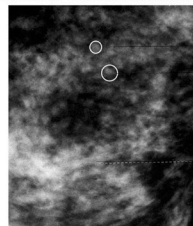
TDLUs on 3D histology and on a galactogram. Terminal duct
Illustration of subgross breast anatomy using 3D histologic-
mammographic comparison.



A lobule consists of 40-60 ductules / acini. This is the site of milk
production and also 75% of breast cancers originate from the cells
lining the acini (AAB, acinar adenocarcinoma of the breast).

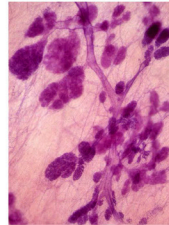


Large format thick section (subgross, 3D) histology image of
neighboring TDLUs. The lobule and the terminal duct
combined are termed "Terminal Ductal Lobular Unit (TDLU).

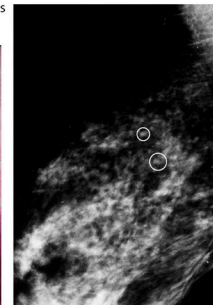


TDLUs

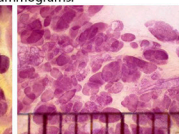
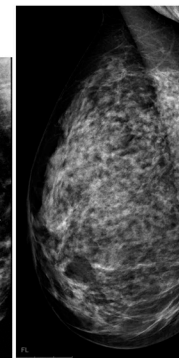
Milk ducts



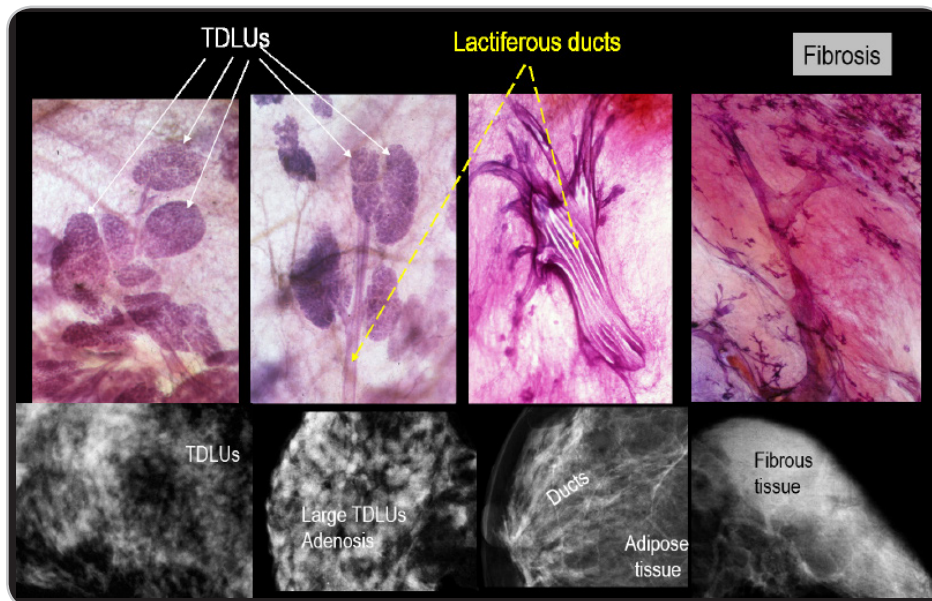
Three of the four basic building
blocks (TDLU, ducts and fibrous
tissue) are discernable on this 3D
histology slice.



Three of the four basic building blocks (TDLU, ducts and adipose
tissue) are discernable on these mammograms.



The size of a normal TDLU
varies between 0.7 - 1.5 mm.



The breast, unlike any other organ, has **five structurally different mammographic parenchymal patterns.**

12:00 PM - 1:00 PM Lunch



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Day 1 Afternoon lectures: 1:00 PM - 5:30 PM.

Breaks at 2:30 and 3:30 PM

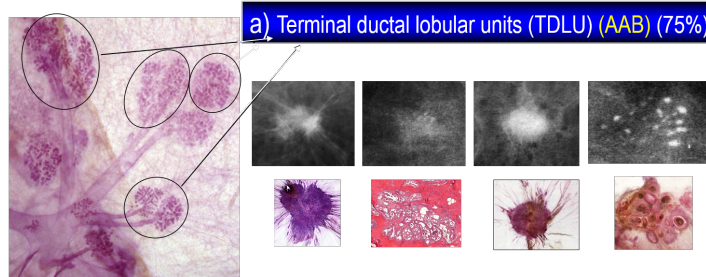
ALGORITHM FOR CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

HOW TO FIND THE INVASIVE BREAST CANCER WHEN IT IS STILL SMALL. *Malignant stellate and circular/oval-shaped lesions originating from the TDLUs (AAB):* clinical presentation, histology, mammographic - MRI - ultrasound appearance and outcome.

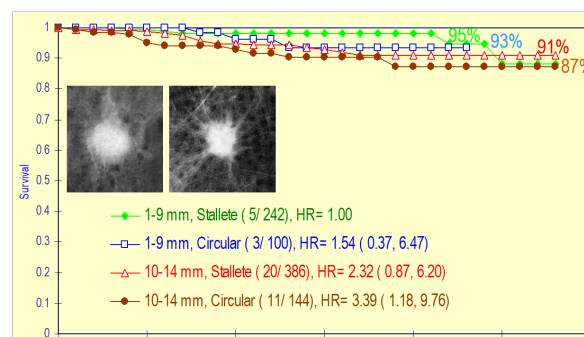
- A systematic method for viewing mammograms. Areas on the mammogram where most breast cancers will be found. Viewing dense breasts. Viewing relatively easy-to-read breasts.
- The role of hand-held ultrasound / 3D automated ultrasound / MRI in the detection and workup of the findings. The multimodality approach

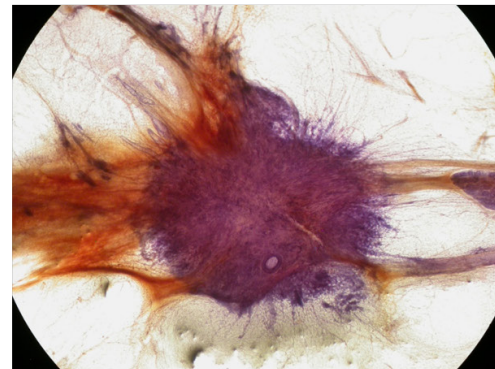
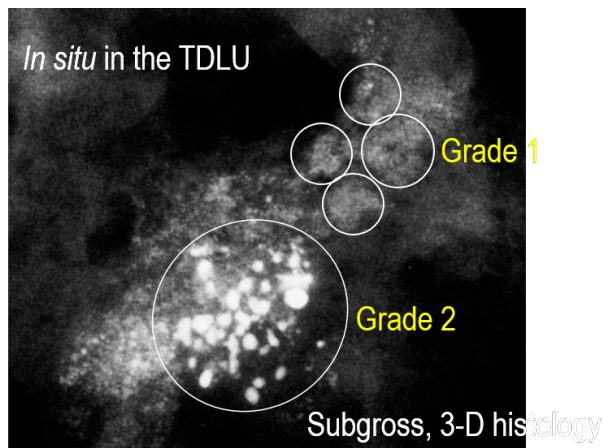
- **Interactive screening session:** Using what has just been taught, each participant will assess a mixture of normal and early cancer cases, and vote anonymously using a smartphone or tablet. The combined results will appear instantly for discussion and evaluation.

We use a classification system which is based on the apparent anatomic site of origin of breast cancer since the long-term patient outcome appears to be largely determined by the site of origin of breast cancer.

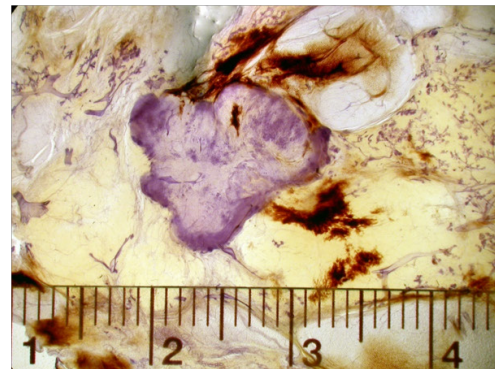
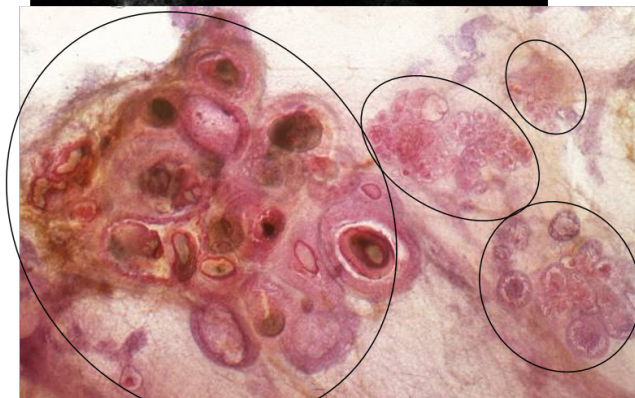


with no associated calcifications on the mammogram. Women 40-69 yrs old, diagnosed in Dalarna county, Sweden between 1977-2006

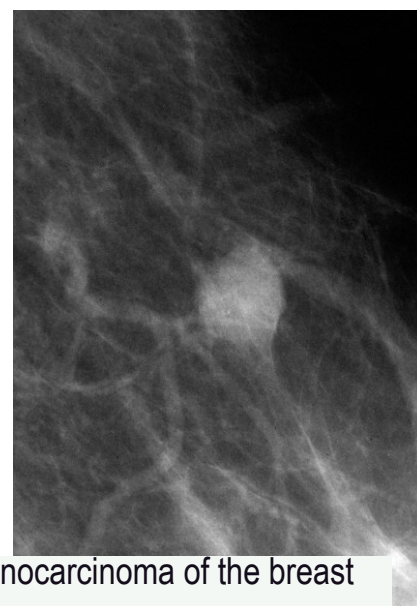
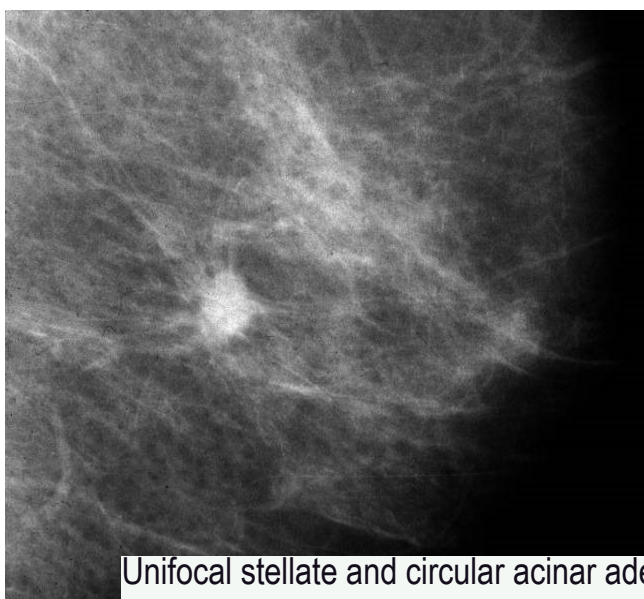




Invasive



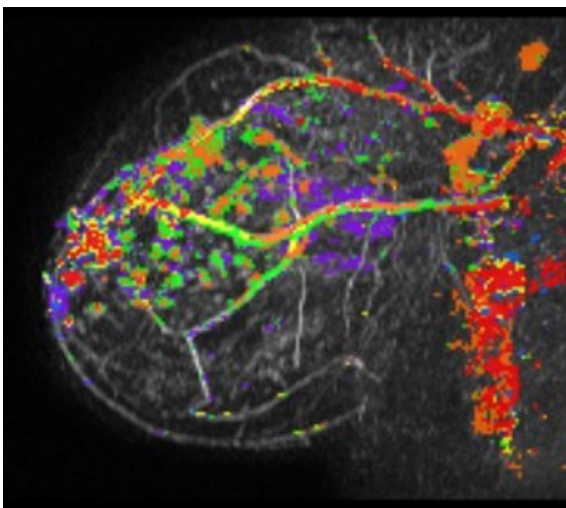
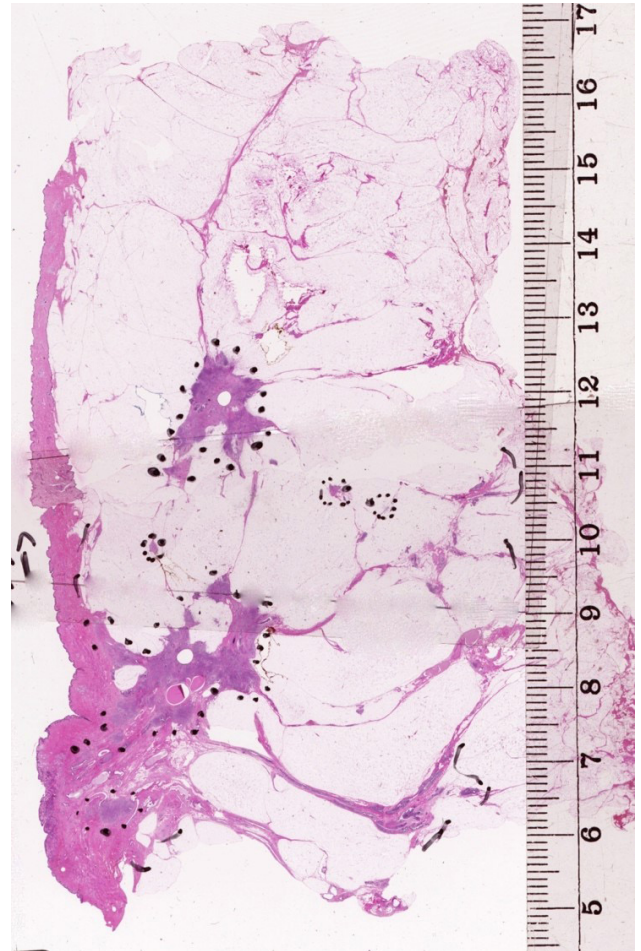
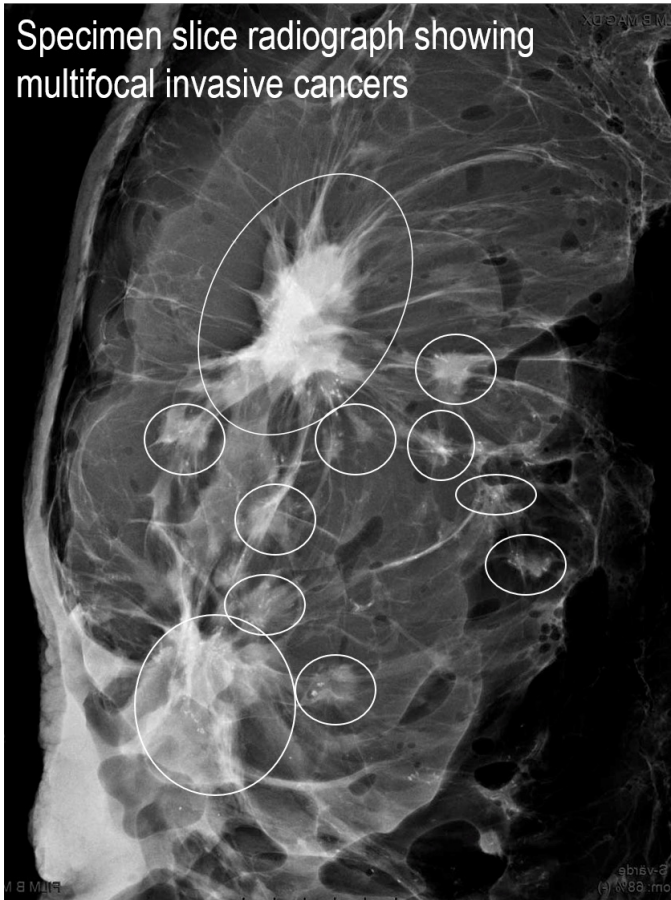
Grade 1 and 2 carcinoma *in situ* in the TDLUs, not DCIS. The subsequent invasive carcinoma is either a stellate or circular tumor mass (not invasive "ductal" carcinoma), well demonstrable on the mammogram.



Unifocal stellate and circular acinar adenocarcinoma of the breast

Multifocal acinar adenocarcinoma of the breast

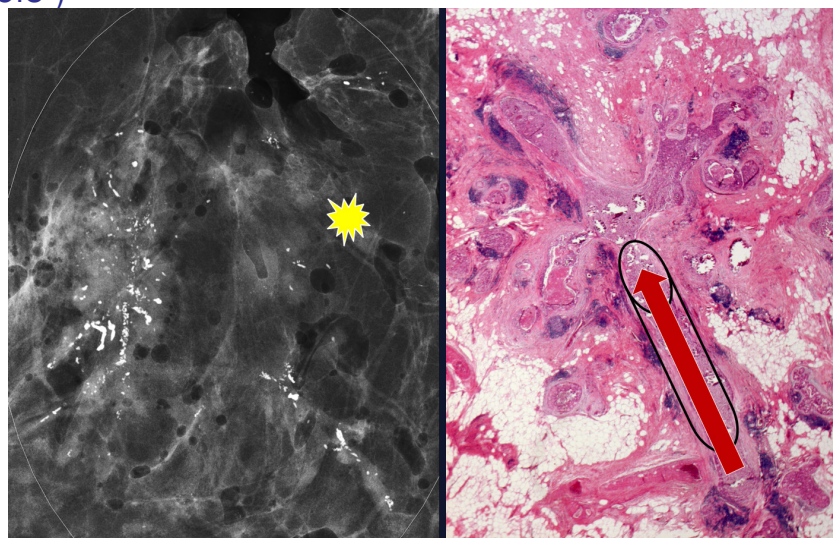
Specimen slice radiograph showing
multifocal invasive cancers



5:30 PM. End of Day 1.

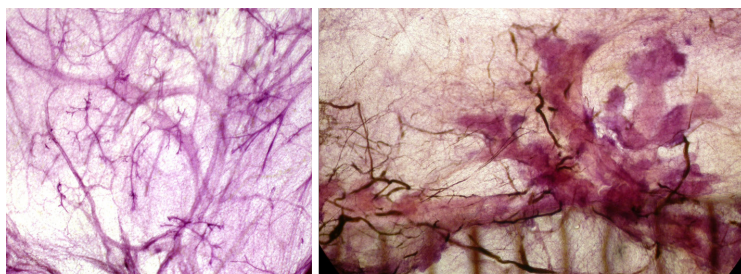
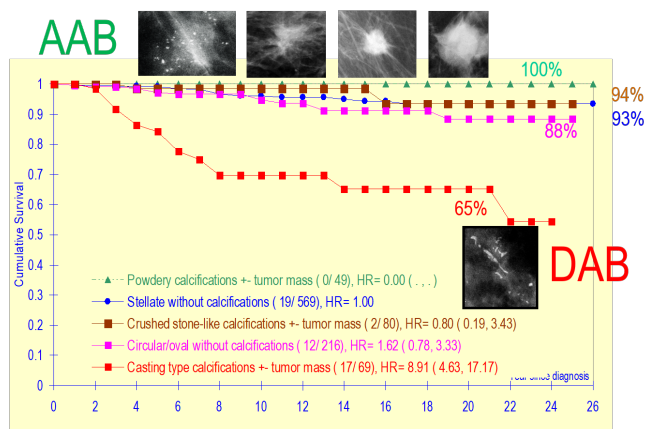
Day 2 Nov 18 Morning lectures between 8:30 AM - 12:00 PM. Breaks: 10:00 AM, 11:00 AM

Diffuse breast cancer originating from the major lactiferous ducts (DAB) (duct forming invasive carcinoma, not "DCIS")



Mammographic-histologic correlation: 60x30 mm Gr 3 duct forming invasive cancer (DAB) and a 6x3 mm poorly differentiated AAB.

Cumulative survival of women aged 40-69 years with 1-14 mm invasive breast cancers by mammographic tumor features. Dalarna county, Sweden.

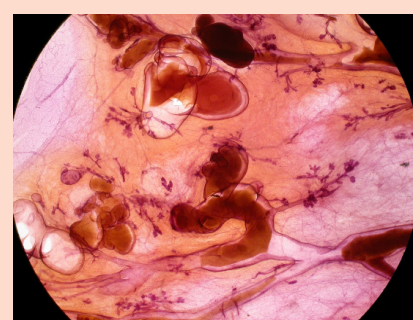
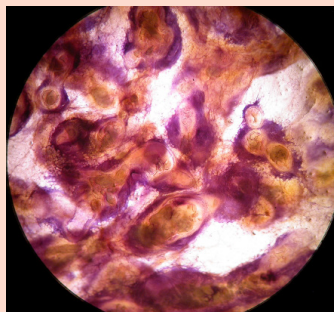
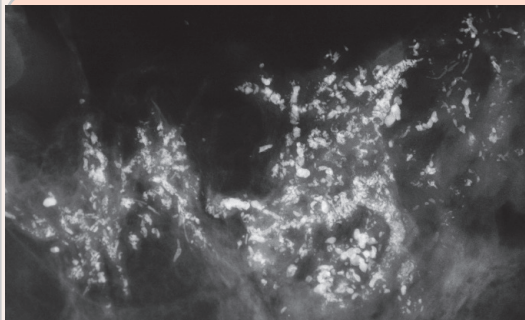
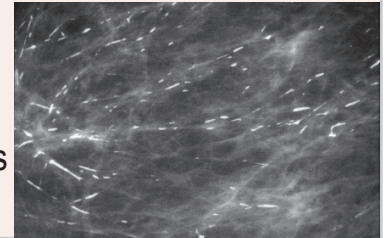


INTERACTIVE LECTURE SERIES WILL COVER THE FOLLOWING TOPICS.

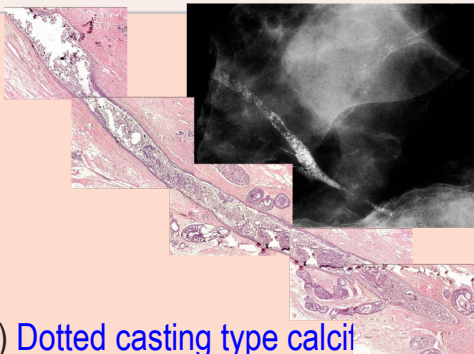
ALGORITHM FOR CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

Breast diseases originating in the major ducts

- **Benign type calcifications** originating in the major ducts
 - a) Secretory disease type calcifications
- **Malignant type calcifications** originating in the major ducts
- **Interactive calcification analysis.**

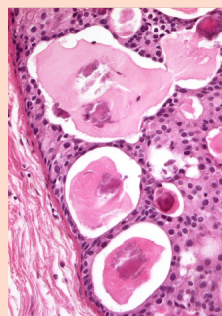
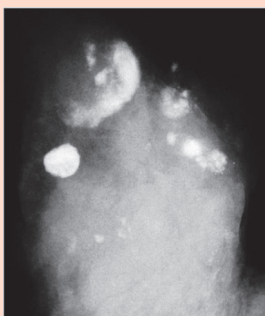


a) **Fragmented casting type calcifications.**

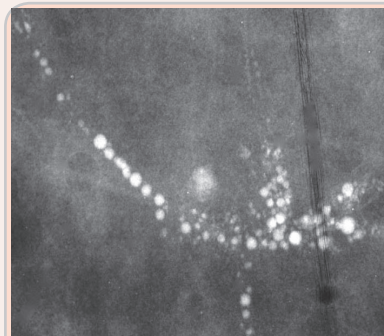


b) **Dotted casting type calcifications**

- * **Four different malignant type calcifications** developing in the major ducts: **a)** fragmented casting type **b)** dotted casting type **c)** skipping stone-like **d)** pearl necklace-like.
- * The concept of **neoductogenesis**. Long-term follow-up results. New aspects, correct terminology.
- * The role of breast MRI examination in demonstrating the extent of Gr 3 in situ carcinoma.
- * Mammographic/3D histologic correlation helping to explain the underlying pathophysiology and outcome.



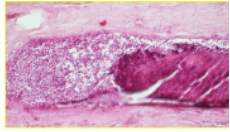
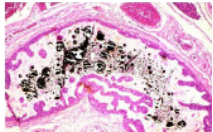
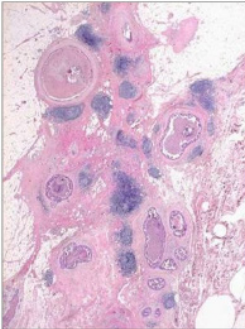
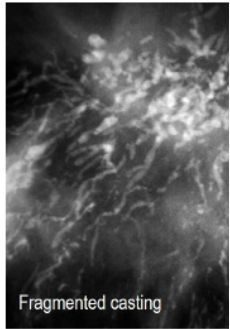
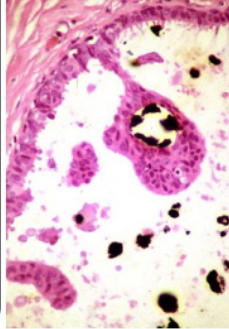
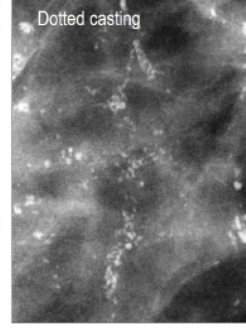
c) **Skipping stone-like calcifications**

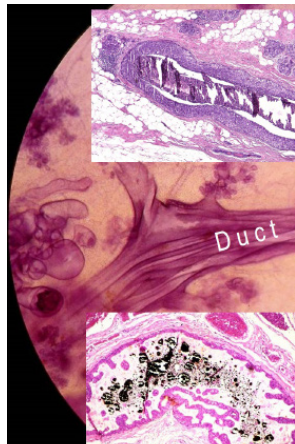
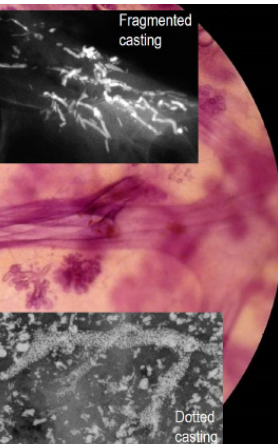
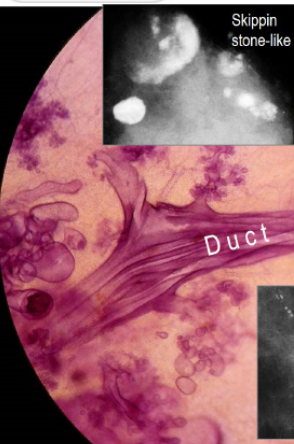



d) **Pearl necklace-like calcifications**

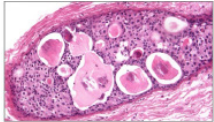
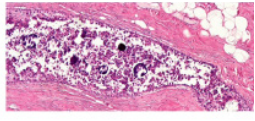
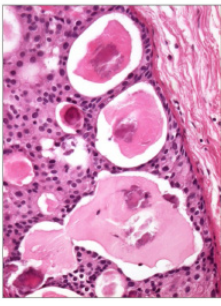
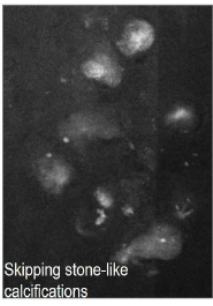

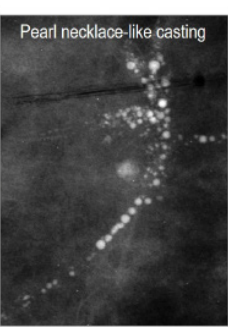
12:00 PM - 1:00 PM Lunch

Day 2 Afternoon lectures between 1:00 PM - 5:30 PM. Breaks: 2:30 PM, 3:30 PM

<p>MALIGNANT: Necrosis, no fluid</p> <p>Ca++ in necrosis</p> <p>Type 1 FRAGMENTED CASTING (solid bars)</p> <p>Diffuse, lobar disease</p> <p>Grade III solid cell proliferation</p>	<p>Ductal Origin Ca++ on the mammogram</p> 	<p>MALIGNANT: Necrosis, no fluid</p> <p>Ca++ in necrosis</p> <p>Type 2 DOTTED CASTING-TYPE (snakeskin-like)</p> <p>-Diffuse, lobar disease</p> <p>- Grade III</p> <p>-micropapillary cell proliferation</p>	<p>Ductal Origin Ca++ on the mammogram</p> 
  <p>Fragmented casting</p>	  <p>Dotted casting</p>		

  <p>Fragmented casting</p>	  <p>Dotted casting</p>
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Interactive calcification analysis.

<p>MALIGNANT: No necrosis, fluid</p> <p>Ca++ in proteinaceous fluid</p> <p>Type 3 "DISCOID" (skipping stone-like)</p> <p>-Diffuse lobar disease</p> <p>-Grade II</p> <p>-Micropapillary or/and cribriform</p>	<p>Ductal Origin Ca++ on the mammogram</p> 	<p>MALIGNANT: No necrosis, fluid</p> <p>Ca++ in proteinaceous fluid</p> <p>Type 4 "PEARL NECKLACE"</p> <p>-large psammoma body-like calcifications within ducts</p> <p>-Grade I or/and 2</p> <p>- Micropapillary, cribriform.</p>	<p>Ductal Origin Ca++ on the mammogram</p> 
  <p>Skipping stone-like calcifications</p>	  <p>Pearl necklace-like casting</p>		



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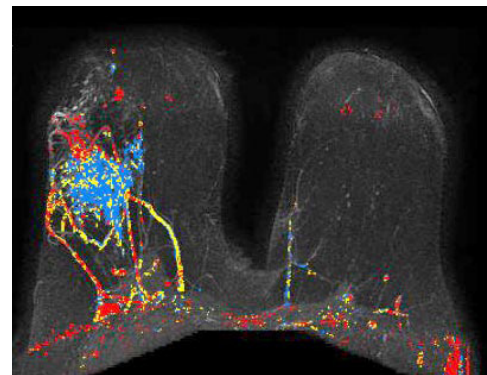
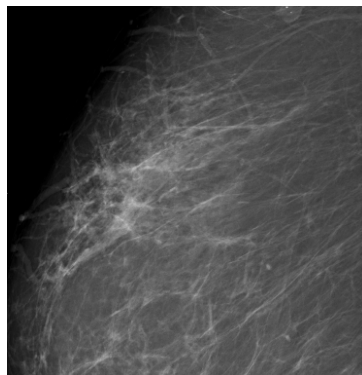
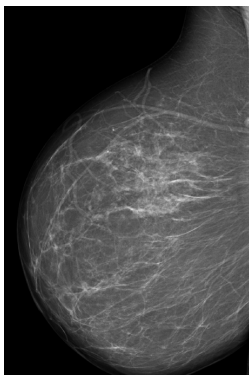
Detection and Diagnosis of Breast Diseases
Using the Multimodality Approach. An interactive course.

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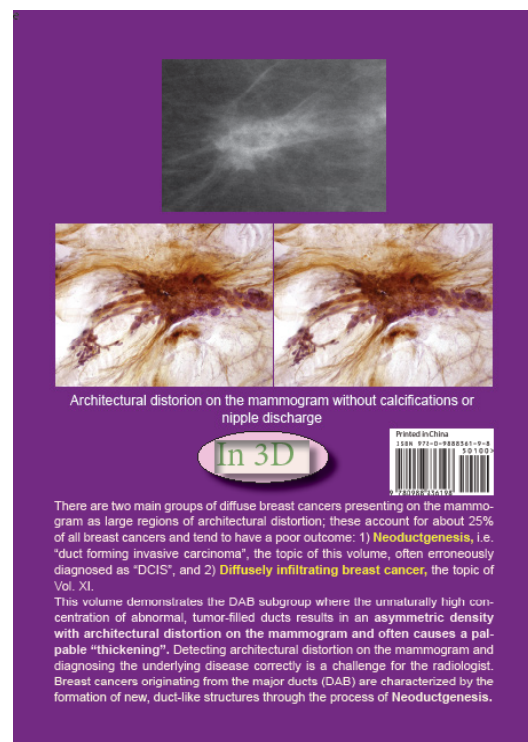
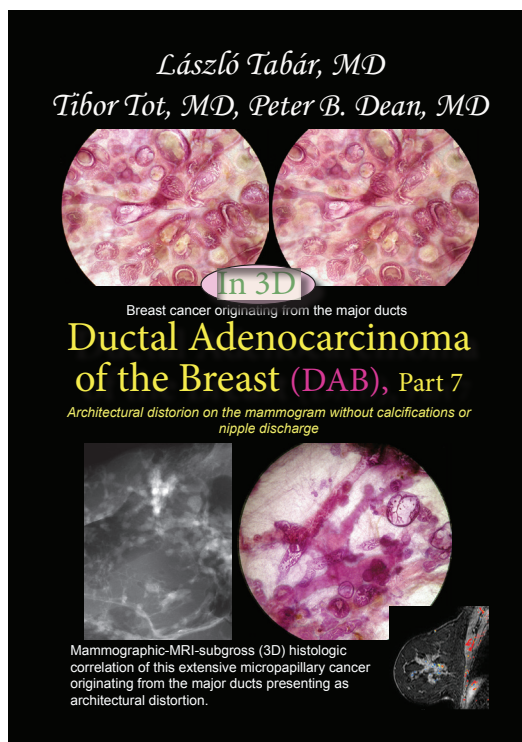
ANALYSIS of **MALIGNANT LESIONS** PRESENTED as non-calcified RADIATING STRUCTURES on the mammogram. Clinical presentation, mammographic appearance and outcome.

- **Duct forming invasive carcinoma / Neoductgenesis** cases presenting on the mammogram as architectural distortion. **The role of MRI in diagnosing diffuse breast cancer.**

Interactive session for detecting architectural distortion on the mammogram.



Non-calcified architectural distortion: extensive duct forming invasive cancer

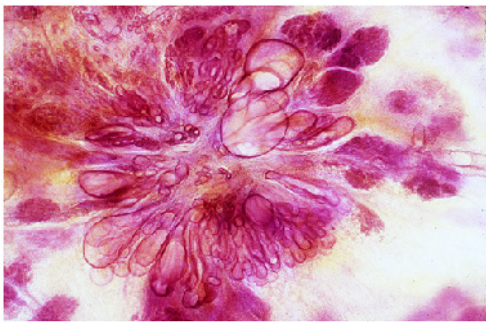


5:30 PM. End of Day 2.

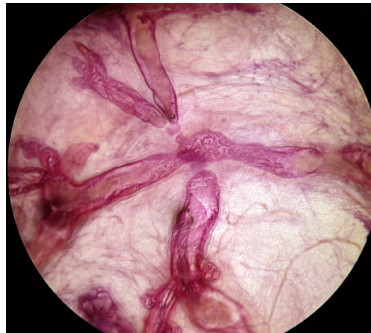
Day 3 Nov 19 Morning lectures between 8:30 AM - 12:00 PM. Breaks: 10:0 AM, 11:00 AM

ASYMMETRIC DENSITIES ON THE MAMMOGRAM

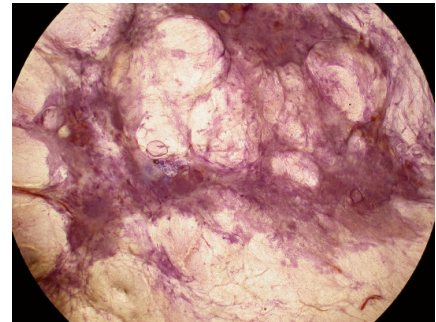
- Didactic workup of *non-specific asymmetric densities without architectural distortion*
 - Didactic workup of *non-specific asymmetric densities with architectural distortion*
- A suggested algorithm for the workup of lesions with architectural distortion.



Radial scar



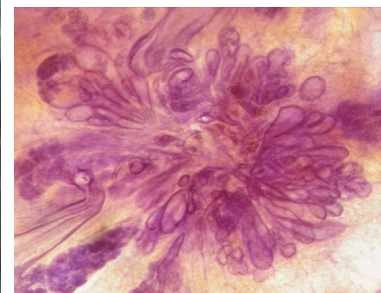
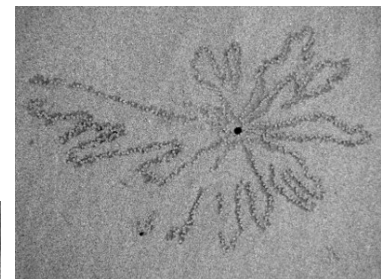
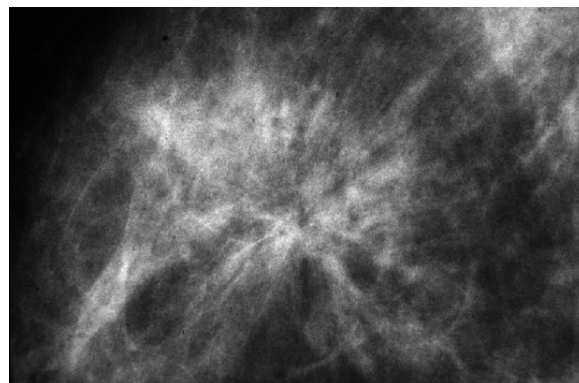
Neoductogenesis (DAB)



Diffusely infiltrating cancer of mesenchymal origin

ANALYSIS of **BENIGN RADIATING STRUCTURES** on the mammogram, originating in the ducts:

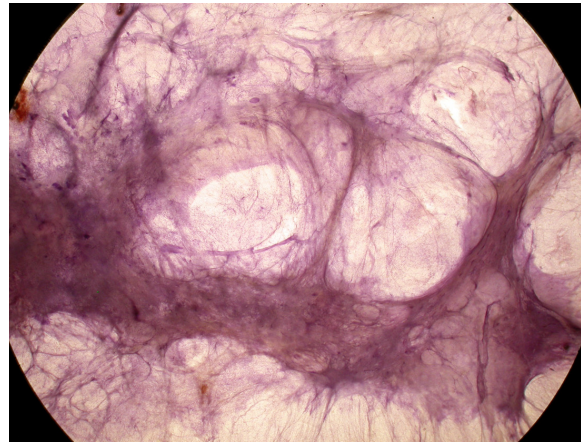
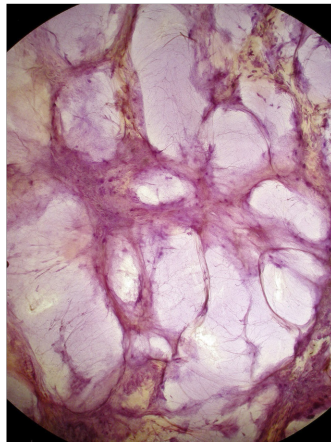
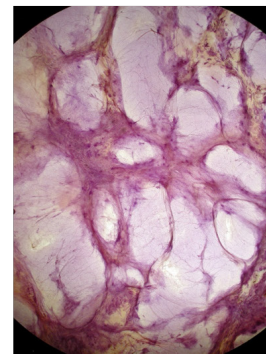
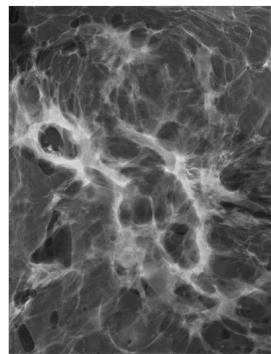
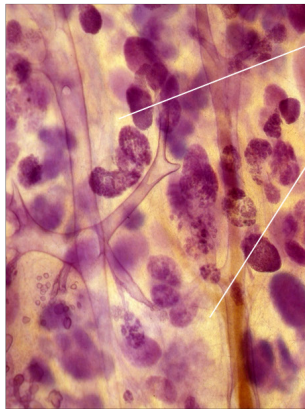
Radial scar / sclerosing ductal hyperplasia



Diffusely invasive breast cancer of mesenchymal origin (aka invasive lobular).

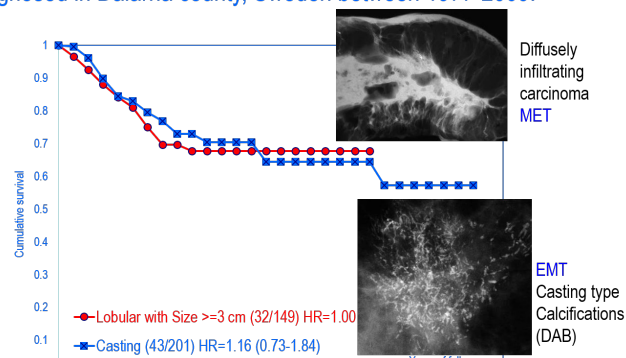
Long-term patient outcome appears to be largely determined by the site of origin of breast cancer.

c) Mesenchyme (MET) (5 %)



Mammographic-subgross histopathologic correlation of diffusely infiltrating breast cancer of mesenchymal origin.

mammogram and directly infiltrating cancer of mesenchymal origin, diagnosed in Dalarna county, Sweden between 1977-2009.

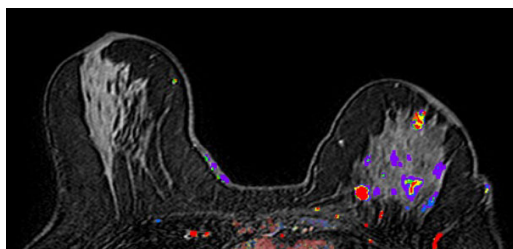
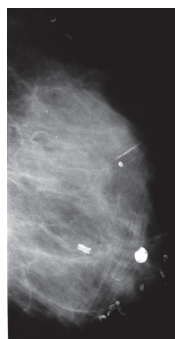


12:00 PM - 1:00 PM Lunch

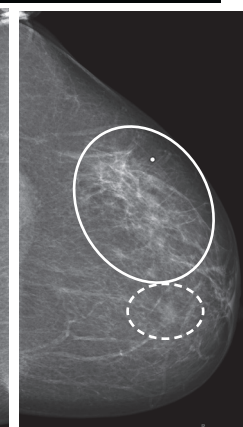
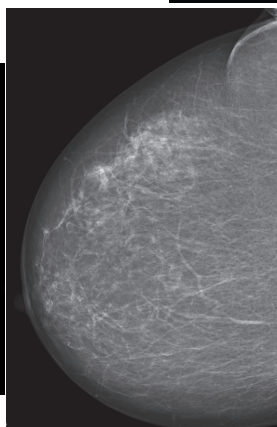
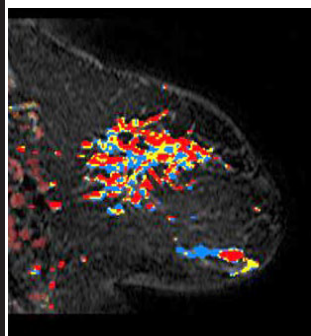
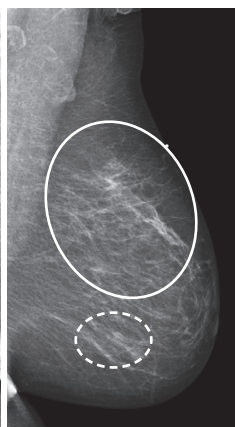
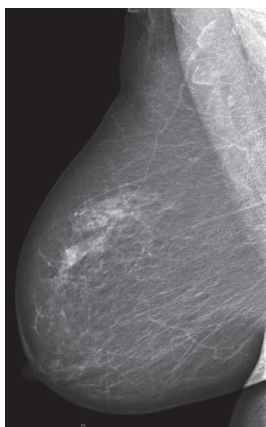
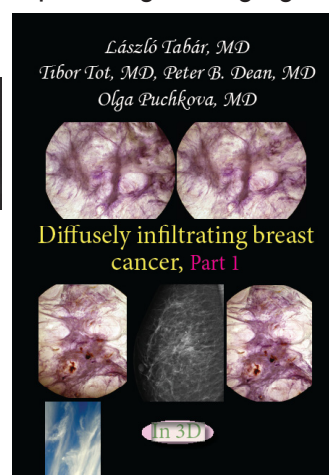
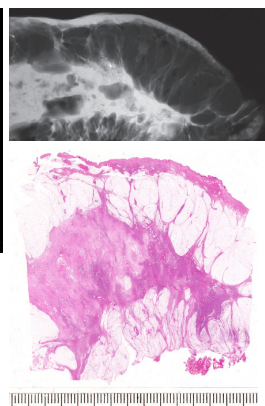
Day 3 Afternoon lectures between 1:00 PM - 4:30 PM. Breaks: 2:00 PM, 3:00 PM

ANALYSIS of MALIGNANT LESIONS PRESENTING as RADIATING STRUCTURES on the mammogram. Clinical presentation, mammographic appearance and outcome, cont.

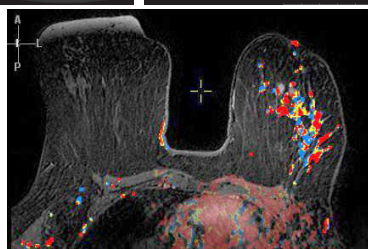
2) **Diffusely infiltrating breast cancer of mesenchymal origin**: the most deceptive and frequently missed cancer of the breast. The value of **ultrasound and MRI** in finding and diagnosing this spider's web-like malignancy. Case demonstrations, large section histopathologic-imaging correlation. Long-term outcome.



Example 1. Multimodality workup of a huge diffusely infiltrating breast malignancy of mesenchymal origin.



Example 2. Diffusely infiltrating (spider's web-like) carcinoma of mesenchymal origin in the upper half of the breast and a spherical, round lesion, originating from the TDLU (AAB) is seen in the lower portion of the left breast.



Interactive session for detecting architectural distortion on the mammogram.

4:45 ARTHISTORYLECTURE: -A FRIGERIO

Day 4 Nov 20 Morning lectures between 8:30 AM - 1:00 PM. Breaks: 10:00 AM, 11:00 AM

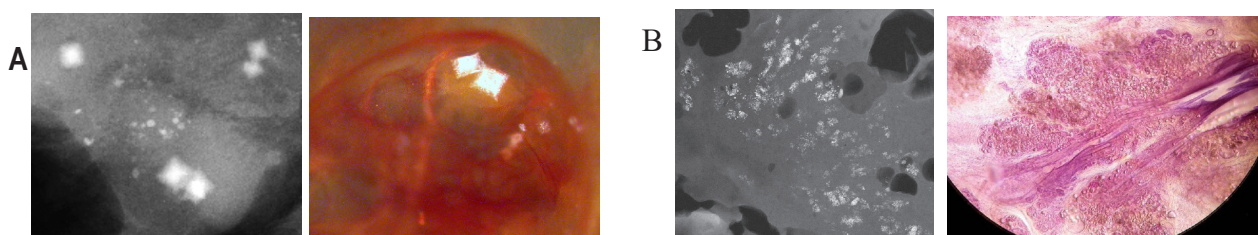
ALGORITHM FOR CLASSIFYING BREAST DISEASES ACCORDING TO THEIR SITE OF ORIGIN

- **Benign breast diseases originating in the TDLU** and associated with calcifications on the mammogram
 - **Fibrocystic change. Fibroadenoma. Different types of adenosis.** Understanding pathophysiology leading to calcified and non-calcified hyperplastic breast changes.

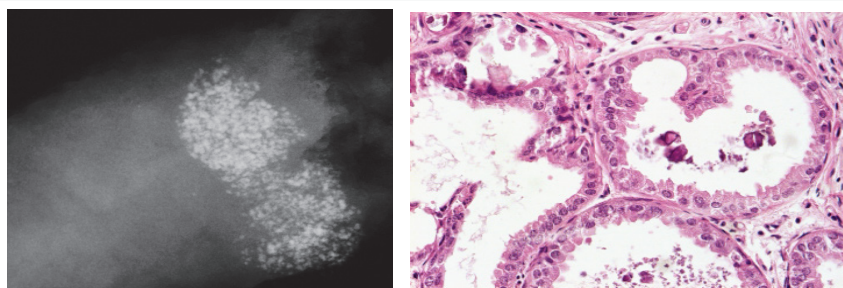


body-like calcifications, seen as "teacup-like calcifications on the mammogram.

- Detailed analysis of calcifications associated with hyperplastic breast changes: Weddellites (A), powdery calcifications (B), cluster skipping stone-like calcifications on the mammogram.

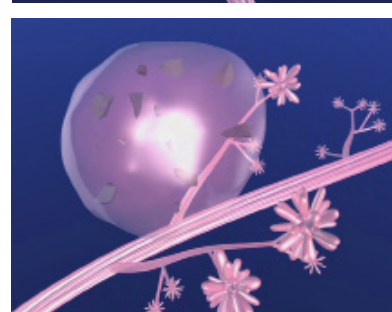
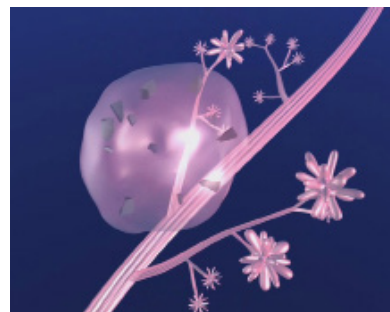
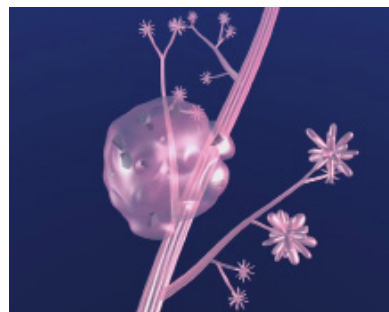
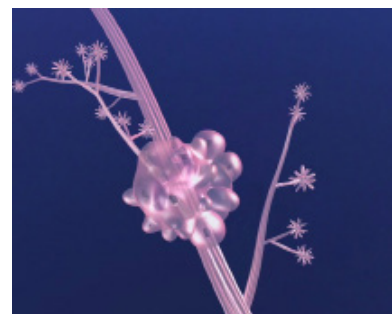
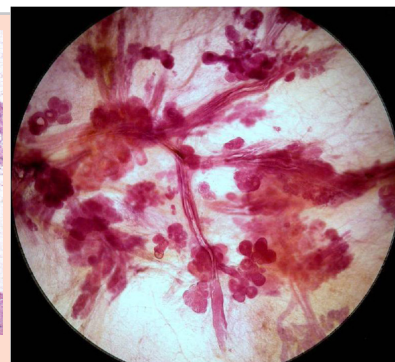
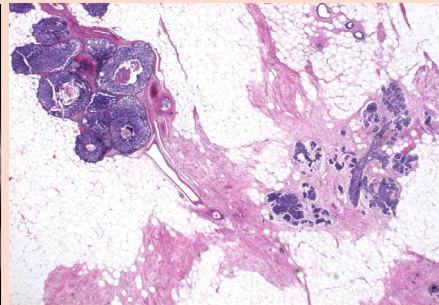
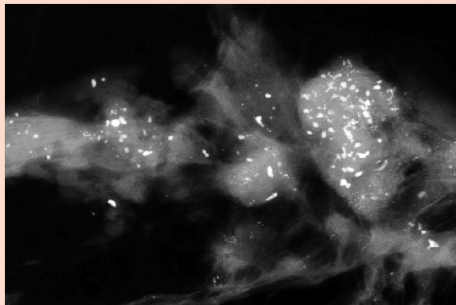
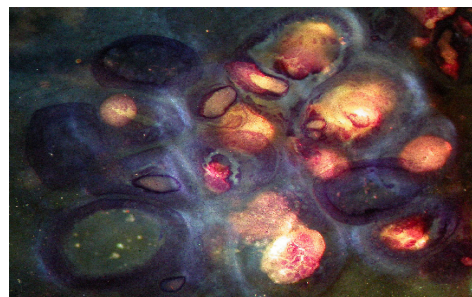
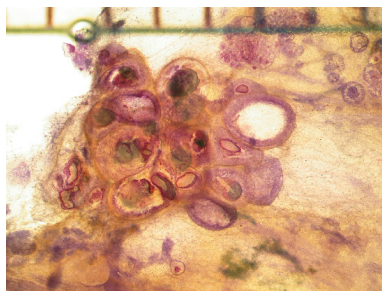
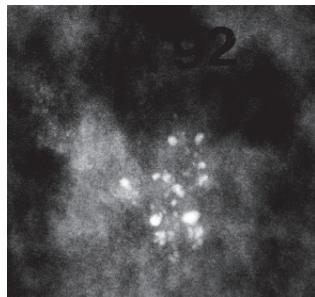


- The morphologic analysis of calcifications representing a less aggressive carcinoma:
Grade 1 / well differentiated CIS



Grade 1 *in situ* carcinoma:
Mammographic / 3D histologic / MRI correlation of cases with powdery calcifications on the mammogram.

Mammographic / histopathologic correlation of pleomorphic calcifications representing Gr 2 CIS within the TDLU



Computer simulation images of the development of Grade 2 *in situ* carcinoma within the TDLU. The lobule becomes gradually distended and deformed. Calcifications are formed within the necrotic debris and are seen on the mammogram as **crushed stone-like calcifications**.

1:00 End of the course



2020

BREAST SEMINAR SERIES of MEI

Detection and Diagnosis of Breast Diseases
Using the Multimodality Approach. An interactive course.

László Tabár, MD, FACR (Hon)
Course Director

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